NMFS SOUTHWEST FISHERIES SCIENCE CENTER
HONOLULU LABORATORY
CORAL REEF ECOSYSTEM INVESTIGATION

EXECUTIVE SUMMARY

The goal of CREI of the NMFS SWFSC HL is to conduct research that provides scientific information and advice to ensure the long-term viability of coral reef ecosystems in the U.S.-affiliated islands of the western Pacific, including the NWHI. The objectives of the Investigation are to conduct an ecosystem-based research program required for scientific support of the:

- Coral Reef Ecosystem Fishery Management Plan of the Western Pacific Regional Fisheries Management Council,
- National Action Plan to Conserve Coral Reefs,
- Coral Reef Conservation Act,
- Executive Orders related to Coral Reef Protection, Marine Protected Areas, and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve,
- Recovery of critically endangered Hawaiian monk seals and threatened green sea turtles.

The CREI uses comprehensive, multidisciplinary research approaches to address coral reef ecological assessment and monitoring, habitat mapping and characterization, oceanographic processes affecting coral reef ecosystems, and coral reef restoration through marine debris mitigation. In addition, several applied research activities are conducted including examining ocean circulation patterns, evaluating the potential effectiveness of marine protected areas, ecosystem modeling of trophic linkages, spatially structured population modeling, evaluating the impacts of lobster trapping on habitat, and developing techniques to assess exploitable bottomfish populations.

Ecological assessments are conducted for reef fishes, corals, other invertebrates, and marine algae. An array of tools and methods is used in coral reef ecological assessment and monitoring studies and in determining the oceanographic processes influencing coral reef ecosystems. These include the use of towboard and other diver surveys, instrumented oceanographic moorings and buoys, oceanographic research vessels, and satellite remote sensing technologies. Habitat mapping and characterization research employs single- and multibeam acoustic technologies, towed camera systems, and towed-diver surveys. Marine debris mitigation on coral reefs utilizes divers on multiple ships in multi-agency campaigns. Satellite and aircraft remote sensing technologies are being used to evaluate the feasibility of locating and efficiently removing concentrations of marine debris at sea before coral reefs and protected species are adversely impacted.

The FY 2002 budget for CREI is $6.3 million ($4.8M NMFS and $1.5M National Ocean Service [NOS]); in FY 2001 it was $5.6 million ($4.9M NMFS and $0.7M NOS). The number of staff is presently 39, of which 6 are NOAA/NMFS, 1 is a NOAA Corps Officer, 14 are hired through the UH JIMAR, and 18 are hired through a private contractor. One of these staff is a post-doctorate, six are first year graduate students and two are part-time undergraduates at the UH. CREI scientists work closely with staff from other research investigations at HL, colleagues elsewhere within NOAA, and partners in other federal, state, and territorial agencies and non-governmental organizations.